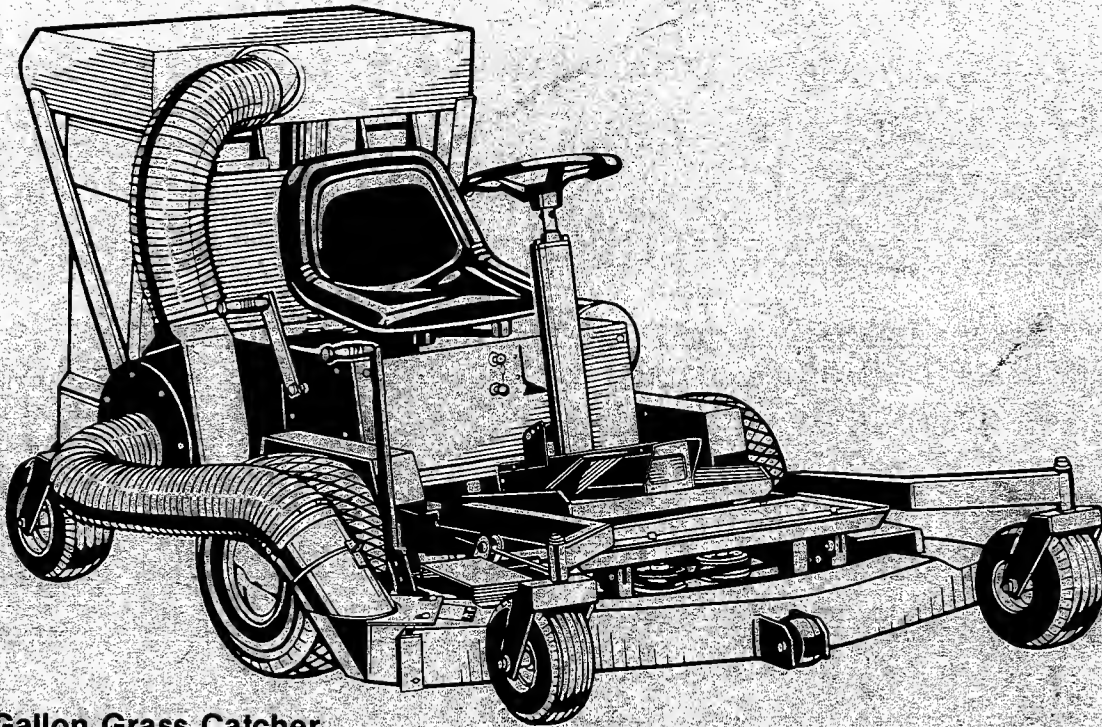


# OPERATOR'S MANUAL

## Grass Catcher For Commercial Front-Cut Riders

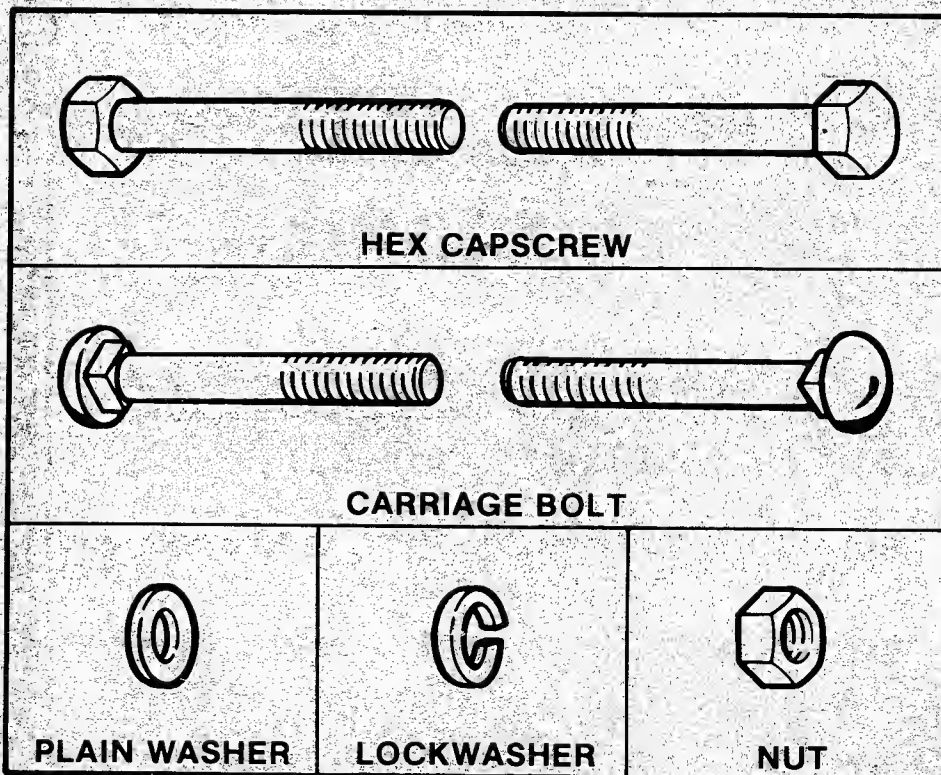


**60 Gallon Grass Catcher**

FORM - 1705845  
PRINTED IN U.S.A.  
2/90

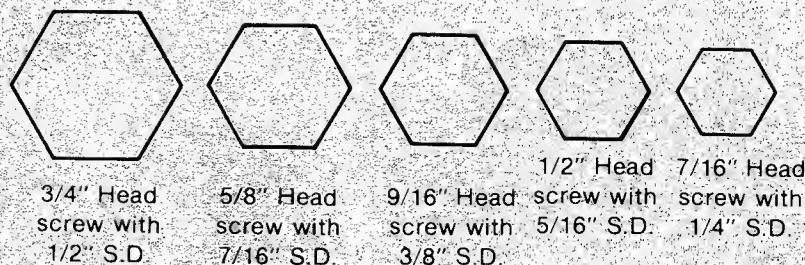
30 GALLON GRASS CATCHER  
MFG. NO. 1691853

60 GALLON GRASS CATCHER  
MFG. NO. 1691854  
MFG. NO. 71691883

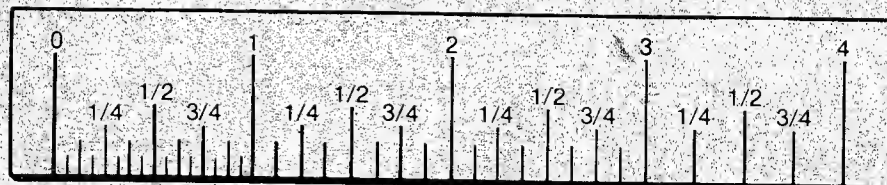


#### HEX CAPSCREW IDENTIFICATION

Shown below are actual size hex heads for standard screw sizes. Example: a 1/4" screw has a 7/16 head and thus requires a 7/16 wrench. To measure length, use the scale below.



S.D. = Shaft Diameter



#### WASHER AND NUT IDENTIFICATION

Place the washer or nut on the above scale to determine inside diameter. The actual inside diameter can vary 1/16 inch. Use the scale for comparison.

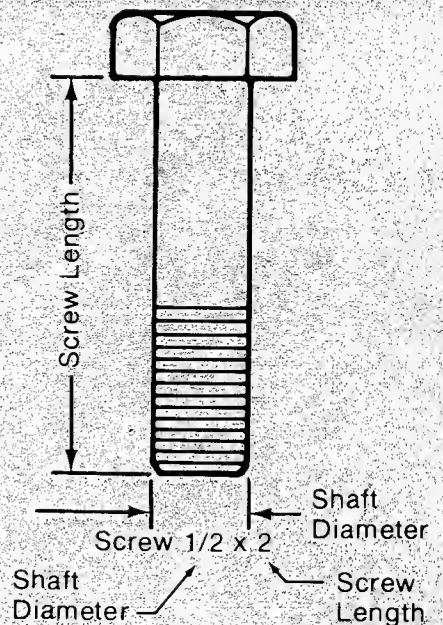
## STANDARD FASTENER IDENTIFICATION CHART

Hardware sizes are given in the illustrations throughout this manual.

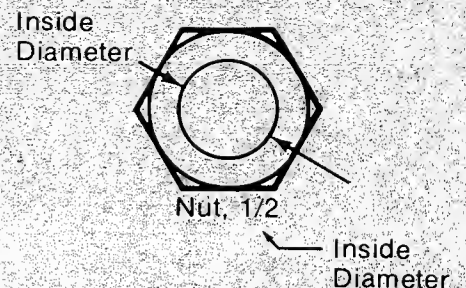
If a washer or nut is identified as "washer, 1/2" or "nut, 1/2", this means the inside diameter is 1/2 inch.

If a screw is identified as "screw, 1/2 x 2", this means the shaft diameter is 1/2 inch and the shaft of the screw is 2 inches long. If a screw is identified as "screw, 1/2-16 x 2", the number "16" means that the screw has 16 threads per inch.

#### SAMPLE: SCREW IDENTIFICATION



#### SAMPLE: NUT IDENTIFICATION



## Table of Contents

<b>STANDARD FASTENERS</b> .....	<b>Inside Front Cover</b>
<b>RECOMMENDED ACCESSORIES</b> .....	<b>1</b>
<b>SAFETY DECALS</b> .....	<b>1</b>
<b>SAFETY RULES</b> .....	<b>2</b>
<b>OPERATION AND STORAGE</b> .....	<b>3</b>
<b>60 GALLON GRASS CATCHER</b>	
Kit Parts (Frame and Bin Group) .....	4
Kit Parts (Blower Housing Group) .....	5
Assembly .....	6
<b>30 GALLON GRASS CATCHER</b>	
Kit Parts .....	10
Assembly .....	11
<b>TROUBLESHOOTING</b> .....	<b>12</b>
<b>TORQUE SPECIFICATIONS</b> .....	<b>Inside Back Cover</b>

## Recommended Accessories

The 60 Gallon Grass Catcher requires installation of the Double-Chain Reduction Kit (Mfg. No. 1691864) and Dual-Tail Wheels (Mfg. No. 1691852), if not factory-installed. Rear frame weights must be removed to install grass catcher; these weights must be reinstalled when grass catcher is removed.


## Safety Decals





## Safety Rules



Read these safety rules and the safety rules in your tractor Operator's Manual and follow them closely. Failure to obey these rules could result in loss of control of vehicle, severe personal injury to yourself, or damage to property or equipment. The triangle  in the text signifies important cautions or warnings which must be followed.

1. Know the controls and how to stop the tractor quickly. **READ THE TRACTOR'S OPERATOR'S MANUAL.**
2. Shut the engine (motor) off before attaching, adjusting or disconnecting the collection system.
3. Check the grass catcher frame to make sure it is attached securely to tractor.
4. Look behind to make sure the area is clear before backing up.
5. **CAUTION:** For added tractor stability and to prevent tipping or loss of control;
  - a. **DO** drive in reduced speed on uneven ground and when turning corners.
  - b. Reduce loads on hillsides. It is recommended that the Collection System be kept only half full when negotiating any slopes. Start mowing on slopes when the Collection System is empty.
  - c. Mow up and down the face of slopes: **never across the face of any slope.**
6. **CAUTION:** Objects may be thrown from mower. For your safety:
  - a. **DO NOT** remove the bins while the mower blades are turning. Shut off the engine before removing the hoses or adapter.
  - b. Be sure the complete Collection System is in place (cover secure, bins in place, and grass hoses connected) before operating the mower.
7. For best results when mowing grass: Set the mower to cut off from 1 to 2 inches of grass (leave at least 1-1/2" of grass). If grass is exceptionally tall, set your mower as high as possible for first cutting. Lower cutting height at succeeding cuttings until proper height is reached. It may be necessary to mow tall grass at a slower tractor ground speed (keep engine at full throttle).



### WARNING

Do not operate the tractor unless the entire grass catcher system or mower discharge deflector is properly installed.



### WARNING

Before removing bins, hoses, or adapter, disengage mower, turn off engine and remove the key. Do not remove grass hose while mower is running.



### WARNING

Do not stop or start suddenly when operating uphill or downhill. Mow up and down the face of slopes; never across the face. Select slow ground speed before driving onto a slope. Never operate on slopes greater than 16° which is a rise of 3 feet (0.91 meters) vertically in 10 feet (3.1 meters) horizontally.

## Operation and Storage



### WARNING

For safety reasons, grass and debris are to be removed only after engine is shut off, key removed, and all moving parts stopped.



### WARNING

Before removing bins or grass hoses, shut off engine, remove key, and set parking brake.

### BEFORE OPERATION

Clear the lawn of all sticks, stones, wire and other debris which may be caught or thrown by the mower blades and blower fan.

Clean the hose with mild detergent (other products may damage hose). Inspection windows can be removed to be cleaned. Make sure windows are securely in place before operating.

Check grass condition. If wet, wait until later in the day. If grass is wet plugging may occur.

For efficient bagging, air circulation under the mower deck, through the chute and into the bag is very important. For this reason, you should remove grass and debris from underside of mower deck, mower adapter, and hose adapter.

The adapter and hose should be removed for cleaning. Remove the attaching hardware securing mower adapter. To clear hose blockage, unhook hose adapter from mower adapter. Reinstall parts and secure with spring clip.

If desired, the bins can be lined with 30 gallon trash bags for easy disposal.

Inspect the grass bin(s) for wear or damage. Make sure that there is a snug fit between mower deck, adapter, hose, and grass bin cover.

### OPERATION

Grass should be cut often, and not too short. If grass is too long or lush it may be necessary to keep ground speed to a minimum or to cut only half the width to prevent clogging. If grass is high, operate with mower in high cutting position. Cut the grass again in lower cutting position, if desired.

To check if grass is flowing up hose, view hose through rear inspection window. Do not remove bins with mower engaged.

If a large amount of cut grass is spilling out from under deck, the hose may be plugged or collection bins are full. Shut off tractor, disengage PTO, and allow all moving parts to stop before disconnecting hose.



### CAUTION

On 30 Gallon Catcher, high-lift blade must be replaced with standard blade for operation with original deflector.

Always reinstall mower deflector if mower adapter and baffles are removed.

A screen with larger openings may be used in hood assembly. This will have more carryover, but will improve air flow.

If the container is not used to hold a garbage bag, a section near the top outside of the container can be cut out and a screen bolted in its place. This will give better air flow and will allow the container to be filled to a higher level.

Lift up cover slightly to remove bins.

Always operate with throttle at full speed.

### ADJUSTMENT

#### Belt Tension (60 Gallon Catcher)

To increase belt tension, the mounting hardware securing the blower assembly can be loosened and housing support moved rearward in horizontal slots.

#### Mower Baffle

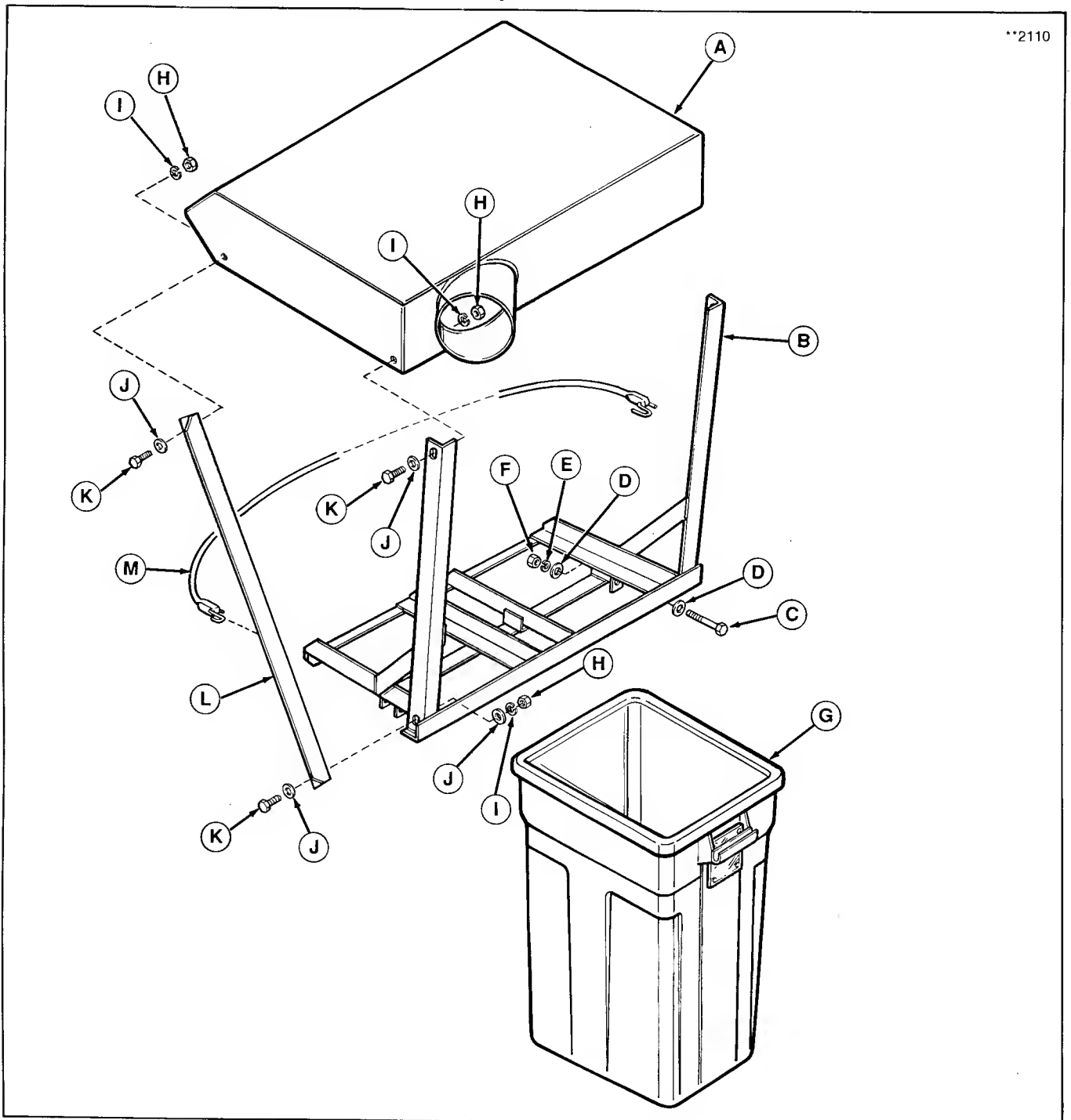
The mower baffle should contact the front underneath edge of mower deck. To adjust, loosen capscrew and mounting hardware and slide baffle inward until it contacts mower deck. Check blade rotation to make sure blade or high-lift tabs do not contact mower adapter or baffle.

### STORAGE

1. Clean the grass catcher thoroughly.
2. If paint has been scratched on metal parts, coat with paint or oil.
3. Store in a dry area. Hang the bags to dry. Always store away from moisture.

# **60 Gallon Grass Catcher - Kit Parts** **Frame & Bin Group (As Assembled)**

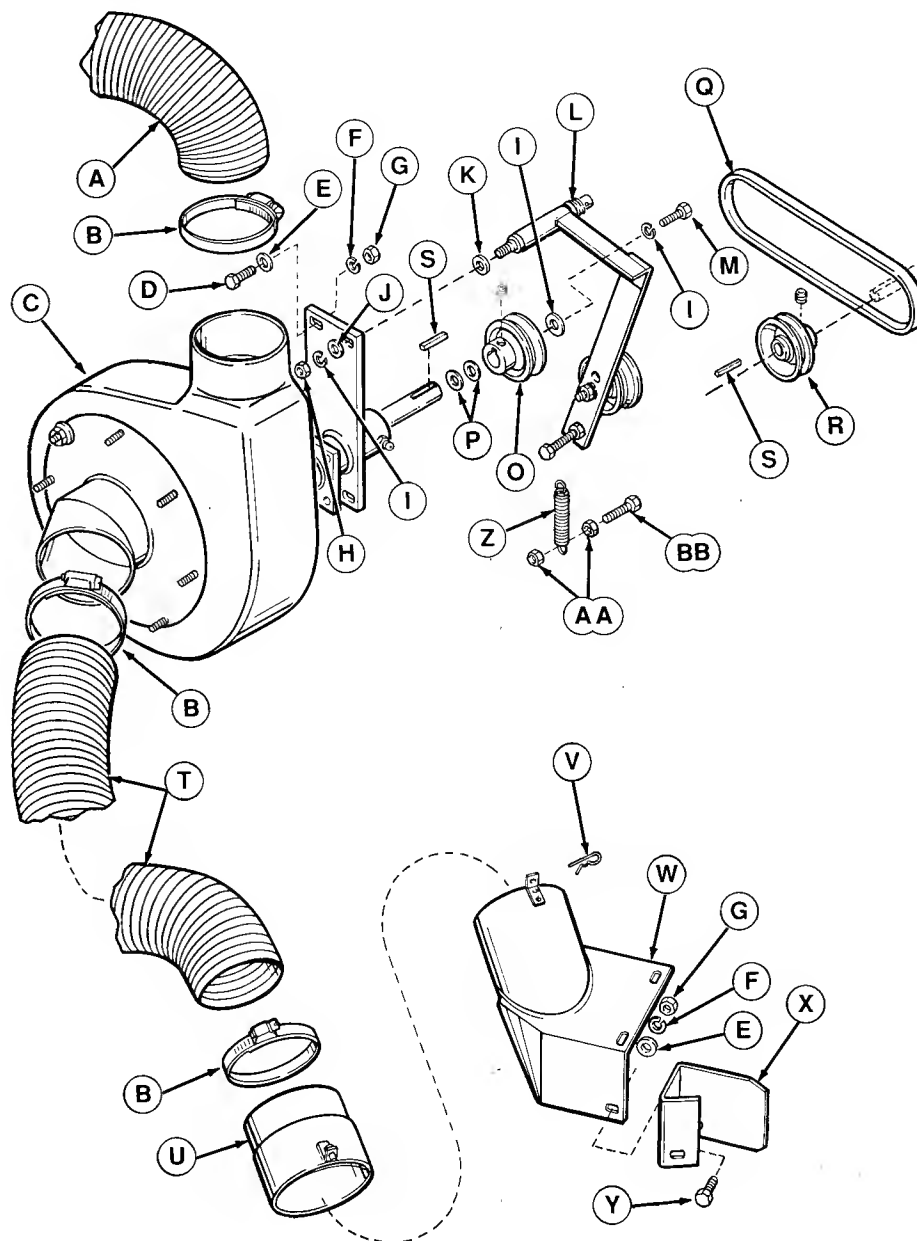
\*\*2110



ITEM	DESCRIPTION	QTY.	ITEM	DESCRIPTION	QTY.
A.	Cover	1	H.	Nut	6
B.	Frame	1	I.	Lockwasher	6
C.	Capscrew, 3-1/2"	2	J.	Washer, 11/32" I.D.	8
D.	Washer, 17/32" I.D.	4	K.	Capscrew, 1"	6
E.	Lockwasher	2	L.	Brace Support	2
F.	Nut	2	M.	Rubber Strap	1
G.	Bin	2			

# 60 Gallon Grass Catcher - Kit Parts Blower Housing Group (As Assembled)

\*\*2109



ITEM	DESCRIPTION	QTY.	ITEM	DESCRIPTION	QTY.
A.	Upper Hose, 33"	1	O.	Blower Pulley (with Setscrew)	1
B.	Hose Clamp	4	P.	Washer, 1" I.D., 1-1/2" O.D.	2
C.	Blower Housing Assembly	1	Q.	Drive Belt	1
D.	Capscrew, 5/16-18 x 1	3	R.	PTO Shaft Pulley (with Setscrew)	1
E.	Washer, 5/16" I.D.	4	S.	Key	2
F.	Lockwasher, 5/16	4	T.	Lower Hose, 44"	1
G.	Nut, 5/16	4	U.	Hose Adapter	1
H.	Nut, 3/8	3	V.	Spring Clip	1
I.	Lockwasher, 3/8	2	W.	Mower Adapter	1
J.	Washer, 13/32" I.D., 7/8" O.D.	1	X.	Baffle	1
K.	Washer, 1/2" I.D., 7/8" O.D.	1	Y.	Capscrew, 5/16-18 x 3/4"	1
L.	Idler Pulley Assembly	1	X.	Spring	1
M.	Capscrew, 3/8-24 x 1"	1	AA.	Nut	2
N.	Washer, 1/2" I.D., 1-1/4" O.D.	1	BB.	Capscrew	1

## 60 Gallon Grass Catcher - Assembly

1. To install grass collector, four 3/8" holes must be drilled in the frame on the right side and a 4" hole must be cut in the screen. Refer to figure 1 for correct dimensions. Measure and drill the bottom set of holes first and then measure the top set of holes.

### NOTE

Drill bottom set of holes first (3/4" from top surface of bottom frame member). Then measure 10" to top set of holes, centerpunch and drill. This will ensure clearance between hub of blower shaft and bottom frame member.

2. Install pulley and key on PTO shaft. Pulley should be flush with end of shaft for preliminary alignment. Secure pulley with setscrew. Do not tighten securely until after pulley has been aligned (step 8). It may be necessary to loosen nut (outside frame) securing idler pulley assembly to install PTO pulley. If there is not enough clearance with lower frame member, loosen hardware securing left hand jackshaft bearing and tip jackshaft to install pulley.
3. Install 3/8-16 x 1-3/4" bolt inside the engine compartment through the bottom hole on frame (see figure 1). Secure with two nuts (one nut on each side of frame). Bolt head will be used to mount idler pulley spring (see step 9).

4. Install two flat washers (A, figure 2, 1-1/2" O.D.) on blower housing input shaft (shaft can be coated with anti-seize lubricant). Install key (B) and pulley (C, hub toward blower housing) onto shaft and secure with setscrew (D). Install 3/8-24 x 1" capscrew (E), lockwasher (F), and flat washer (G, 1-1/4" O.D.) through pulley to threaded blower shaft. Do not tighten setscrew or mounting hardware until after belt alignment is correct (see step 8). Extra washers (A) are provided to shim pulley on shaft for correct belt alignment with PTO shaft pulley.

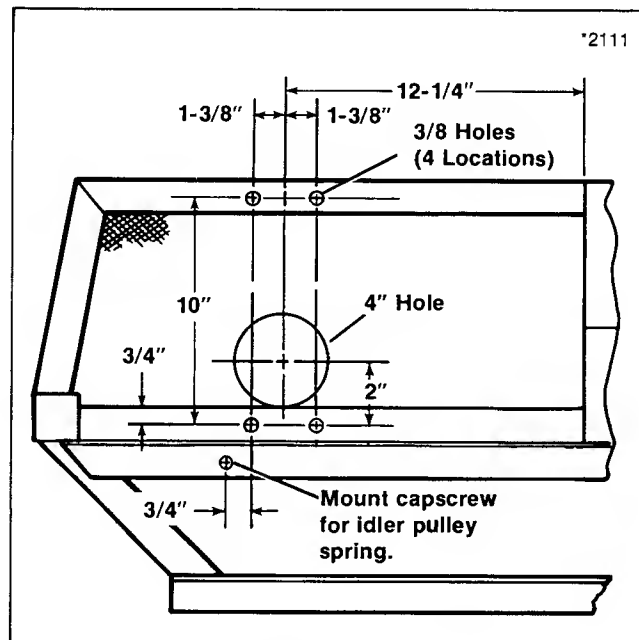


Figure 1. Drilling Template

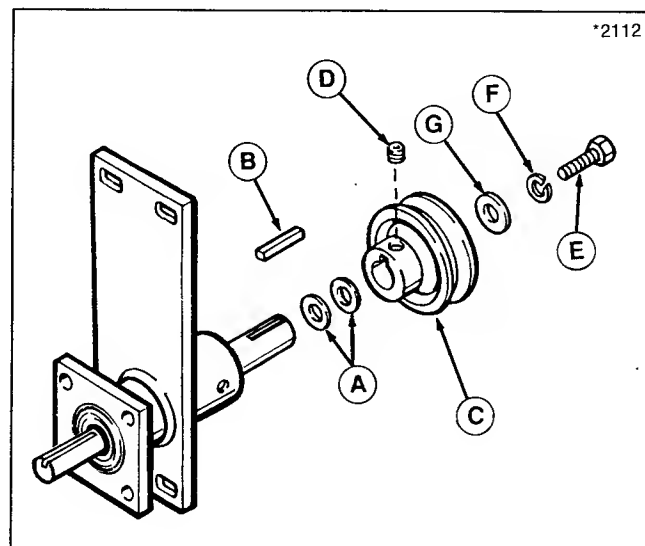


Figure 2.

- A. Flat Washer
- B. Key
- C. Pulley
- D. Setscrew

- E. Capscrew, 3/8-24 x 1
- F. Lockwasher
- G. Flat Washer, 5/16 I.D., 1-1/4" O.D.



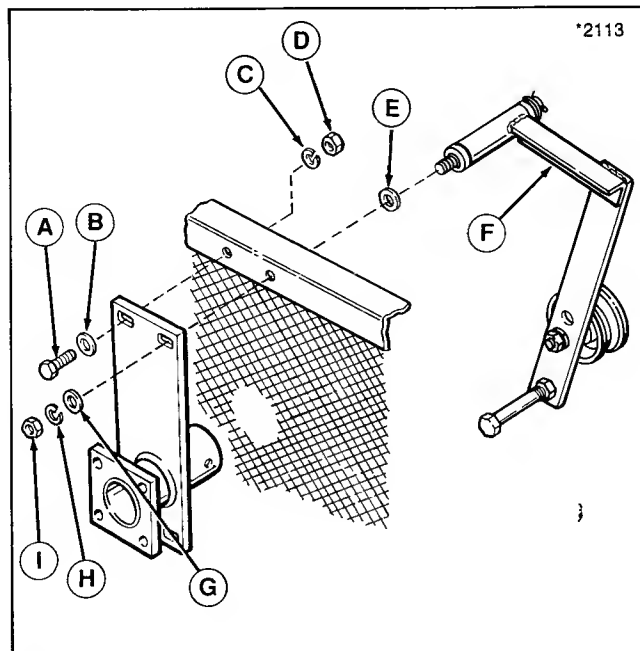
### NOTE

On models with flexible exhaust pipe, it may be necessary to loosen muffler clamps and pull up on exhaust pipe before installing blower assembly.

### NOTE

If bottom of input shaft hub interferes with bottom frame member, file or grind a slight semi-circle from frame member so that housing can be mounted flush to frame. Blower housing should be mounted parallel to ground.

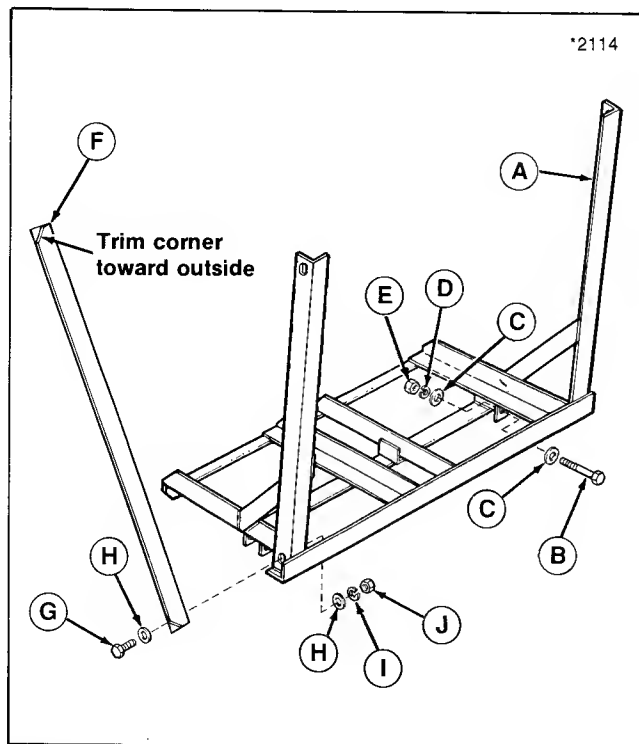
5. Install blower housing to frame with three 5/16-18 x 1" capscrews (A, figure 3), flat washers (B), lockwashers (C), and nuts (D). Hardware will be installed in top right hole in next step. Mount in forward position of bracket slots when tightening hardware.
6. Place a flat washer (E, figure 3, 7/8" O.D., 1/2" I.D.) on shaft of idler pulley bracket (F) and install bracket through top front hole (enlarge to 13/32" as necessary). Secure with flat washer (G, 7/8" O.D., 13/32" I.D.), 3/8 lockwasher (H), and 3/8 nut (I). With hardware tightened, shaft and idler pulley arm should be square with rider frame. Additional flat washers (E) can be installed between idler pulley bracket and frame to provide proper belt alignment with blower shaft pulley and PTO pulley (see step 8). Before installing idler pulley bracket, cut the screen or grind any weld that will prevent a flush, square fitment to frame.
7. Install belt (35" length) around PTO and blower shaft pulley. After spring is installed (step 9), belt will be tensioned by backside (flat side) of idler pulley.
8. Check alignment of PTO pulley and blower pulley by placing straightedge across pulley faces. PTO pulley can be moved out 1/4" (maximum) from end of jackshaft or washers (1-1/2" O.D., 1" I.D.) can be added in front of blower shaft pulley to provide correct belt alignment. After adjustment is correct, tighten mounting hardware first and then setscrews on pulleys. Add washers between idler bracket shaft and frame to center idler pulley on belt.



**Figure 3.**

- A. Capscrew, 5/16-18 x 1"
- B. Flat Washer, 3/4"
- C. Lockwasher
- D. Nut
- E. Flat Washer, 7/8" O.D., 1/2" I.D.
- F. Idler Pulley Bracket
- G. Flat Washer, 7/8" O.D., 13/32 I.D.
- H. Lockwasher
- I. Nut

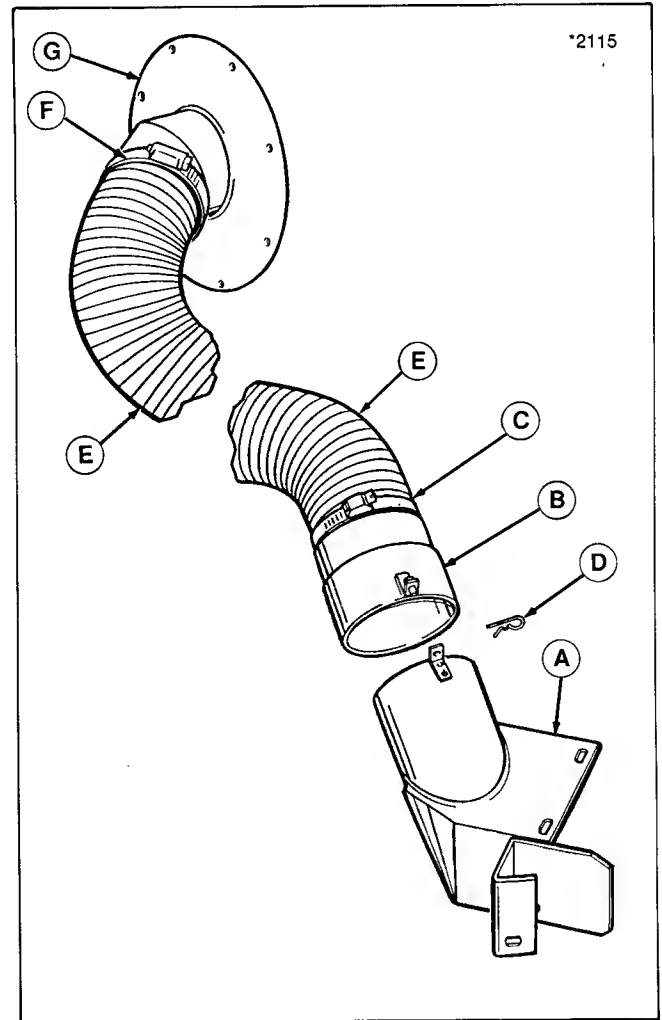
9. Install spring from capscrow mounted in idler pulley bracket to capscrow installed in frame (installed in step 3).
10. Remove the hardware securing the rear weights to the frame. Retain hardware and reinstall weights whenever the rear-mounted grass catcher is removed. Install the dual tail wheels following Installation Instructions packaged with the wheels.
11. Install rear frame (A, figure 4) over dual tail wheel frame and secure with two 1/2-13 x 3-1/2" capscrows (B), flat washer (C, 3/4" O.D.), lockwasher (D), and nut (E).
12. Install rear cover supports (F, figure 4) to bottom of frame and secure with 5/16-18 x 1" capscrows (G), flat washers (H, 3/4" O.D.), lockwashers (I), and nuts (J). Trim corners of supports should be on the outside of frame.
13. Place front side of cover into position at mounting hole locations in rear frame. Rear side of cover can be rested on bottom frame in order to install mounting hardware. Secure cover with 5/16-18 x 1" capscrows, flat washers, lockwashers, and nuts (hardware located in cover). Do not tighten hardware.
14. Raise cover and install rear cover supports through cover and secure with 5/16-18 x 1" capscrows, flat washers, lockwashers, and nuts (hardware located in cover). Capscrews should be mounted on inside of cover with hardware on outside for easy bin removal.
15. Place collection bins between rear frame and cover with inspection window towards the front. Check position of cover over bins. Cover should fit tightly over bins. If adjustment is required, loosen hardware securing cover to support and raise or lower cover in slotted holes. Tighten hardware when fitment is correct.
16. Place rubber strap around collection bins and hook on holes in rear cover supports.



**Figure 4.**

- A. Rear Frame
- B. Capscrew, 1/2-13 x 3-1/2"
- C. Flat Washer, 3/4" O.D.
- D. Lockwasher
- E. Nut
- F. Rear Support
- G. Capscrew, 5/16-18 x 1
- H. Flat Washer, 3/4" O.D.
- I. Lockwasher
- J. Nut

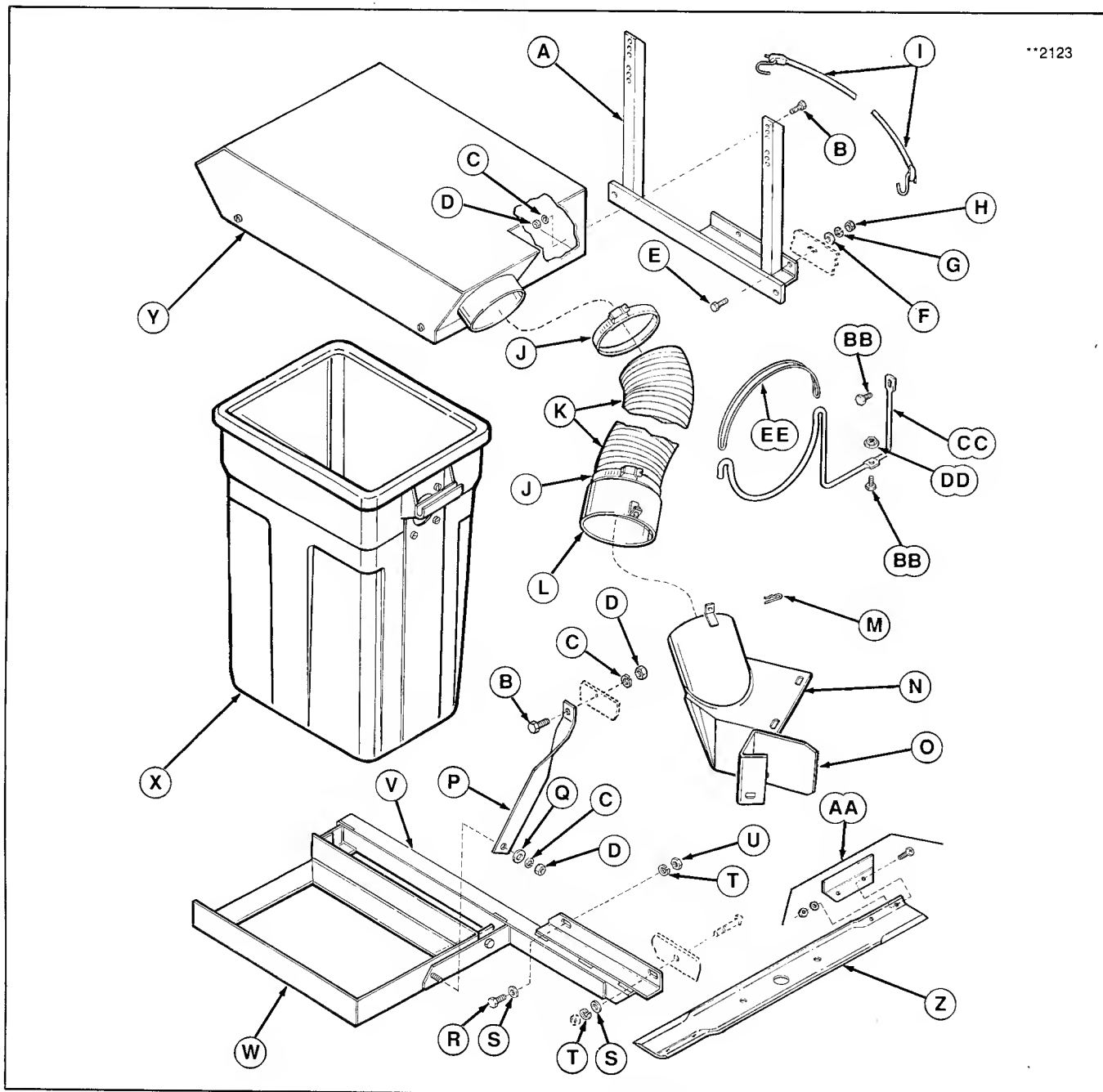
17. Remove mower deflector and retain hardware. Install mower adapter and baffle assembly (A, figure 5) using existing hardware (four locations).
18. Install hose adapter (B, figure 5) to 44" hose and secure with hose clamp (C).
19. Install hose adapter to mower adapter and secure with spring clip (D, figure 5).
20. Install hose (E) to blower housing inlet (G) and secure with hose clamp (F). Cut off excess hose as required.
21. Install 33" hose to blower housing outlet and cover inlet (lubricate as necessary). Secure with hose clamps.
22. With all parts installed and hardware tightened, test operate the blower before actual mowing and collecting of grass.
23. If blower drive belt runs close to itself around idler pulley, loosen the four sets of mounting hardware on blower housing and move housing bracket rearward in slots. This will increase belt tension.
24. Blower drive belt must be removed if operating with any part of the collection system removed.



**Figure 5.**

- A. Mower Adapter/Baffle**
- B. Hose Adapter**
- C. Hose Clamp**
- D. Spring Clip**
- E. Lower Hose, 44"**
- F. Hose Clamp**
- G. Blower Housing**

# 30 Gallon Grass Catcher - Kit Parts



ITEM	DESCRIPTION	QTY.	ITEM	DESCRIPTION	QTY.
A.	Cover Support	1	Q.	Flat Washer, 3/4 O.D.	1
B.	Capscrew, 15/16-18 x 3/4	6	R.	Capscrew, 3/8-16 x 3/4	1
C.	Lockwasher, 5/16	6	S.	Flat Washer, 7/8 O.D.	2
D.	Nut, 5/16-18	6	T.	Lockwasher, 3/8	2
E.	Capscrew, 1/4-20 x 3/4	2	U.	Nut, 3/8-16	1
F.	Flat Washer, 5/8 O.D.	2	V.	Frame Assembly	1
G.	Lockwasher, 1/4	2	W.	Tray	1
H.	Nut, 1/4-20	2	X.	Bin	1
I.	Rubber Strap	1	Y.	Cover	1
J.	Hose Clamp	2	Z.	Blade	1
K.	Hose	1	AA.	High Lift Tab, Kit	1
L.	Hose Adapter	1	BB.	Capscrew, 1/4-20 x 3/4	2
M.	Spring Clip	1	CC.	Hose Support Rod	1
N.	Mower Adapter	1	DD.	Nut, Flange, 1/4-20	1
O.	Baffle	1	EE.	Strap	1
P.	Tray Support	1			

## 30 Gallon Grass Catcher - Assembly

### NOTE

The 30 Gallon Grass Catcher cannot be used with dual tail wheels. If equipped, dual tail wheel assembly must be disassembled and a single wheel reinstalled.

1. Remove the mower deflector and retain hardware to reinstall mower adapter. If discharge side blade has mounting holes for high-lift tabs (AA), mower and blade do not need to be removed. Either install the high-lift tabs to existing blade or change to new blade/tab assembly provided in this kit.
2. Install adapter and baffle assembly (N, O) to mower deck, reusing existing hardware (from deflector) to secure assembly in four locations.
3. Install bottom frame support (V) to rider frame as shown. At front mounting location, remove and reinstall spring-mounting capscrew and attaching hardware, adding a flat washer (S, 7/8" O.D.) and lockwasher (T) on outside of rider frame. At rear location, use 3/8-16 x 1" capscrew (R), flat washer (S), spring lockwasher (T), and nut (U).
4. Install bottom of support strap (P) to weld bolt on frame support and secure with flat washer (Q), lockwasher (C), and nut (D). Make sure bottom frame support is parallel with ground (use wood block as required). Position top of support strap against rider frame (just below grill) and centerpunch location of mounting hole. Hole location should be biased slightly forward to ensure bottom frame tray will swing upwards when not in use. Move strap out of way and drill 11/32" hole. Secure top of strap with 5/16-18 x 3/4" capscrew (B, from inside), spring lockwasher (C), and nut (D).
5. Position upright support (A) against rider frame so that the rear top corner of support is flush with end of rider frame. Position upright support so that holes are approximately 3/4" down from top surface of frame. Mark mounting hole locations and remove upright support. Before drilling holes, make sure holes are level or parallel with top of rider frame. Drill two 9/32" holes as marked.
6. Install upright support to rider frame with 1/4-20 x 3/4" capscrew (E), flat washer (F), lockwasher (G), and nut (H, two locations).
7. Place the collection bin (X) on the bottom frame to support cover. Install cover to upright support and secure with 5/15-18 x 3/4 capscrew (B), lockwasher (C), and nut (D). Use the bottom set of holes on the upright and tighten hardware snug only. Cover should be very snug over bin and cover should be supported in an upright position. If gap is more than 3/8", remove the bin and adjust cover to middle set of holes.  
When adjustment is correct, remove bin and tighten hardware securely.
8. Position collection bin in frame with the clear plastic window toward the front. Place rubber strap (I) around bin and hook in holes in bottom of upright support.
9. Remove existing taptite screw and position hose support on right-hand wheel fender. Secure at top with a 1/4-20 x 3/4" capscrew (BB, in taptite hole). Make sure hose support is square on fender and mark or centerpunch mounting hole on fender. Drill a 9/32" hole through fender, making sure drill will not puncture tire. Secure with 1/4-20 x 3/4" capscrew (BB, from underneath) and locknut (DD).
10. Place hose in hose support (CC) and install hose adapter (L) onto mower adapter (N). Secure the adapter with spring clip (M) through weld stud on hose adapter.
11. Install top of hose assembly to cover opening and secure with hose clamp (J).
12. Secure hose in hose support with rubber strap (EE). Strap can be doubled-over for a tight fit.



### CAUTION

**Remove high-lift tab from blade or reuse original blade when grass catcher is removed. Always reinstall mower deflector when mower adapter and baffle are removed. High-lift tab will contact original mower deflector and may cause damage to blade.**

## Troubleshooting

This section provides troubleshooting instructions for the more common and easily corrected problems. See Table 1. For problems not covered, see your dealer.



### WARNING




**To avoid serious injury, perform maintenance on the collection system only after stopping the engine and waiting for all moving parts to come to a complete stop. Always remove the ignition key before beginning the maintenance to prevent accidental starting of the engine. Disconnect the spark plug wire and fasten away from plug.**

Problem	Cause/Remedy
1. Leaves and grass not being completely picked up.	<ul style="list-style-type: none"> <li>A. Engine speed too slow. Run at full throttle.</li> <li>B. Ground speed too fast. Use lower speed.</li> <li>C. Discharge hose plugged. Stop engine and remove key. Then remove adapter and unplug discharge hose.</li> <li>D. Using wrong mower blades. Use high lift tabs on 30 gallon grass catcher. See Setup Instructions.</li> <li>E. Blades not tight. Torque to 60 ft. lbs.</li> <li>F. Mower not level. See Operator's Manual to level mower.</li> <li>G. Belt slipping. See instructions under "Adjustment".</li> </ul>
2. Grass catcher discharge hose or mower plugs easily.	<ul style="list-style-type: none"> <li>A. Bags full. Empty bags.</li> <li>B. Grass too high. Reduce tractor ground speed, reduce cutting width or raise mower adjustment for the first pass, lower it for the second pass.</li> <li>C. Grass or leaves too wet. Wait for drier conditions.</li> <li>D. Build-up of cut grass in mower or adapter. Clean thoroughly.</li> <li>E. Screen in grass bag cover clogged. Remove bins and clean screens.</li> <li>F. Using wrong mower blades. See Setup Instructions.</li> <li>G. Belt slipping. See instructions under "Adjustments".</li> <li>H. Cutting off too much grass. High-lift blades and adapter collect best when 1-1/2" or more above ground.</li> <li>I. Engine not running at full throttle. Use foot pedal or control levers to control ground speed and keep engine at full throttle.</li> </ul>

**Table 1. Troubleshooting**



**TORQUE SPECIFICATIONS FOR  
STANDARD MACHINE HARDWARE**  
TOLERANCE  $\pm 10\%$

SIZE	SAE GRADE #2 	SAE GRADE #5 	SAE GRADE #8 
8-32	19 In. Lbs.	30 In. Lbs.	41 In. Lbs.
8-36	20 "	31 "	43 "
10-24	27 "	43 "	60 "
10-32	31 "	49 "	68 "
1/4-20	66 "	8 Ft. Lbs.	12 Ft. Lbs.
1/4-28	76 "	10 "	14 "
5/16-18	11 Ft. Lbs.	17 "	25 "
5/16-24	12 "	19 "	25 "
3/8-16	20 "	30 "	45 "
3/8-24	23 "	35 "	50 "
7/16-14	30 "	50 "	70 "
7/16-20	35 "	55 "	80 "
1/2-13	50 "	75 "	110 "
1/2-20	55 "	90 "	120 "
9/16-20	65 "	110 "	150 "
9/16-18	75 "	120 "	170 "
5/8-11	90 "	150 "	220 "
5/8-18	100 "	180 "	240 "
3/4-10	160 "	260 "	386 "
3/4-16	180 "	300 "	420 "
7/8-9	140 "	400 "	600 "
7/8-14	155 "	440 "	660 "
1-8	220 "	580 "	900 "
1-12	240 "	640 "	1,000 "

**NOTES:**

1. These torque values are to be used for all Simplicity hardware excluding: locknuts, self-tapping screws, thread forming screws, and sheet metal screws.
2. Unless otherwise noted on assembly drawings all torque values must meet this specification.

**BOLT HEAD MARKING  
S.A.E. GRADE:**



